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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/691,444	10/22/2003	Paul E. Denney	LOMASR.026A	8101

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EXAMINER	
EVANS, FANNIE L	

ART UNIT	PAPER NUMBER
2877	

DATE MAILED: 10/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/691,444	DENNEY ET AL.	
	Examiner	Art Unit	
	F. L. Evans	2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 June 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *8-10* is/are allowed.

6)☒ Claim(s) *1-7 and 11-18* is/are rejected.

7)☒ Claim(s) *13-18* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *61206*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

The Information Disclosure Statement

The prior art cited in the information disclosure statement filed on June 12, 2006 has been considered.

Claim Objections

Claims 13-18 are objected to in that "The method of Claim 11" in line 1 of claims 13-16 and "The detection system of Claim 12" in line 1 of claim 17 and 18 lack antecedent basis. Claim 11 is not a method claim and claim 12 is not an apparatus claim. It appears that "method" in line 1 of claims 13-16 should be --detection system--and that "detection system" in line 1 of claims 17 and 18 should be --method--. Correction is required.

Claims 13-18 are being treated in rest of this Office action as if the above noted corrections had been made.

Claim Rejections - 35 USC § 101

35 U.S.C. § 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 12, 17 and 18 are rejected under 35 U.S.C. § 101 because the claimed invention is directed to non-statutory subject matter.

The claims are directed to a judicial exception; as such, pursuant to the Interim Guidelines on Patent Eligible Subject Matter (MPEP 2106)), the claims must have either physical transformation and/or a useful, concrete and tangible result. The claims fail to include transformation from one physical state to another. Although, the claims appear useful and concrete, there does not appear to be a tangible result claimed. Merely analyzing (line 8 of independent claim 12) would not appear to be sufficient to constitute a tangible result, since the

outcome of the analyzing step has not been used in a disclosed practical application nor made available in such a manner that its usefulness in a disclosed practical application can be realized. As such, the subject matter of the claims is not patent eligible.

The dependent claims do not appear to add any real world application required by the guidelines.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 11-13 and 15-17 are rejected under 35 U.S.C. § 102(b) as being clearly anticipated by Satoru et al (JP 2002-296183), of record.

Satoru et al disclose a detection system for use during drilling (ablation) by irradiation of an interaction region of a structure with laser light (6), the structure comprising a first material (concrete) and a reinforcement member embedded in the first material (reinforcement bars), the detection system comprising means for focusing light emitted from the interaction region during drilling (ablation) of the structure (condenser lens, etc. - paragraph [0014]); means for separating the focussed light into a spectrum of wavelengths (8); and means (12) for analyzing at least a portion of the spectrum for indications of the reinforcing member within the interaction region. The method of claims 12 and 17 is performed by the disclosed system of Satoru. Applicant's attention is directed to Satoru et al in its entirety with particular attention directed to paragraphs [0007], [0009] and [0014].

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. § 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR § 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. § 103(c) and potential 35 U.S.C. § 102(e), (f) or (g) prior art under 35 U.S.C. § 103(a).

Claims 1, 2, 4, 7, 11-13 and 15-17 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Alexander (US 5,847,825) in view of Satoru et al (JP 2002-296183),both of record.

The preamble of claim 1 is merely a statement of intended use. The structure of the claimed detection system is disclosed by Alexander. Alexander discloses a detection system for use during irradiation of an interaction region of a structure with laser light, the structure comprising embedded material, the detection system comprising a focusing lens (14) positioned to receive light emitted from the interaction region (13); an optical fiber (15) optically coupled to the focusing lens (14) to receive light from the focusing lens (14); and a spectrometer (17) optically coupled to the optical fiber (15) to receive light from the optical fiber (15), the spectrometer adapted for analysis of the light for indications of the embedded material within the interaction region. The light sensor of the spectrometer is a CCD camera system (18). The focusing lens (14) is off-axis with the light impinging on the interaction region. Applicant's attention is directed to Alexander in its entirety with particular attention directed to Fig. 2 and the text pertaining thereto. Alexander does not specifically teach using the detection system of Fig. 2 to analyze emitted light during a laser drilling procedure for indications of a reinforcing member embedded

in a first material.

Satoru et al disclose a detection system for use during irradiation of an interaction region of a structure with laser light (6), the structure (concrete) comprising embedded material (reinforcement bars), the detection system comprising means for focusing light emitted from the interaction region (condenser lens, etc. - paragraph [0014]); means for separating the focussed light into a spectrum of wavelengths (8); and means (12) for analyzing at least a portion of the spectrum for indications of embedded material within the interaction region. Applicant's attention is directed to Satoru et al in its entirety with particular attention directed to paragraphs [0007], [0009] and [0014].

At the time the invention was made, it would have been obvious to one with ordinary skill in the art that a detection system, as disclosed by Alexander, could have been used to determine indications of reinforcing members (bars) in concrete in view its use in detecting embedded materials and the teaching of using an optical spectral analysis system to determine indication of reinforcement members in concrete by Satoru et al. It is noted that there is not positive recitation and/or connection set forth in the claims between a laser drilling device and the detection system.

Claims 3 and 14 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Alexander (US 5,847,825) in view of Satoru et al (JP 2002-296183), as applied to claims 1, 2, 4, 7, 11, 13, 15 and 16 above, and further in view of Jacobowitz et al (US 4,060,327), of record.

The proposed detection system has essentially every claimed feature except Alexander does not specifically disclose the use of an optical grating in the spectrometer.

In lines 20-24 of column 1, Jacobowitz et al teach the advantages of using an optical grating in a spectrometer.

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to use an optical grating in the spectrometer of Alexander because of the advantages obtained therefrom taught in lines 20-24 of column 1 of Jacobowitz et al.

Claim 5 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Alexander (US 5,847,825) in view of Satoru et al (JP 2002-296183), as applied to claims 1-4 and 7 above, and further in view of Jacobowitz et al (US 4,060,327), of record.

The proposed detection system has essentially every claimed structural feature except the neutral density filter adapted to reduce the light received by the spectrometer.

Jacobowitz et al disclose the use of a neutral density filter (24) to reduce the light received by a spectrometer (12).

At the time the invention was made it would have been obvious to use a neutral density filter to reduce the light received by the spectrometer (17) of the proposed detection system because the use of such a filter would have prevented saturation of the detector (18) of the spectrometer. Applicant's attention is directed to lines 49 and 50 of column 3 of Jacobowitz et al.

Claims 1 and 6 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Theriault et al (US 6,147,754) in view of Satoru et al (JP 2002-296183),both of record.

The preamble of claim 1 is merely a statement of intended use. The structure of the claimed detection system is disclosed by Theriault et al. Theriault et al disclose a detection system for use during irradiation of an interaction region of a structure with laser light, the structure comprising embedded material, the detection system comprising a focusing lens (214) positioned to receive light emitted from the interaction region (column 5, lines 9-11); an optical fiber (106) optically coupled to the focusing lens (214) to receive light from the focusing lens (214); and a spectrometer (114) optically coupled to the optical fiber (106) to receive light from the optical fiber (106), the spectrometer adapted for analysis of the light for indications of the embedded material within the interaction region. The focusing lens (214) is coaxial with the light impinging on the interaction region. Applicant's attention is directed to Theriault et al in its entirety. Theriault et al do not specifically teach using the detection system to analyze emitted light during a laser drilling procedure for indications of a reinforcing member embedded in a first

material.

Satoru et al disclose a detection system for use during irradiation of an interaction region of a structure with laser light (6), the structure (concrete) comprising embedded material (reinforcement bars), the detection system comprising means for focusing light emitted from the interaction region (condenser lens, etc. - paragraph [0014]); means for separating the focussed light into a spectrum of wavelengths (8); and means (12) for analyzing at least a portion of the spectrum for indications of embedded material within the interaction region. Applicant's attention is directed to Satoru et al in its entirety with particular attention directed to paragraphs [0007], [0009] and [0014].

At the time the invention was made, it would have been obvious to one with ordinary skill in the art that a detection system, as disclosed by Theriault et al could have been used to determine indications of reinforcing members (bars) in concrete in view its use in detecting embedded materials and the teaching of using an optical spectral analysis system to determine indication of reinforcement members in concrete by Satoru et al. It is noted that there is not positive recitation and/or connection set forth in the claims between a laser drilling device and the detection system.

Allowable Subject Matter

Claims 8-10 are allowable over the prior art of record.

Response to Arguments

Applicant's arguments with respect to claims 1-7 and 11-18 have been considered but are moot in view of the new ground(s) of rejection.

Fax/Telephone Numbers

Any inquiry concerning this communication or earlier communications from the examiner should be directed to the examiner whose telephone number is (571) 272-2414.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr. can be reached on (571) 272-2800 ext 77. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

F. L. EVANS
PRIMARY EXAMINER
ART UNIT 2877

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October 2, 2006